

Effect of pH and Temperature on Enzyme Activity

Experiment 18 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To compare enzyme-response data across defined pH and temperature conditions

Principle

Enzyme response depends on substrate conditions, protein state and the measurement method. Comparisons isolate one variable while keeping enzyme amount, substrate basis and read interval constant.

Requirements

- Instructor-provided labelled diagrams, traces or data for this activity.
- Calculator, graph paper or spreadsheet, and the activity record.

Procedure

1. Plan the comparison

Use separate pH and temperature series from the instructor. Identify the controlled variables and blank.

2. Compare responses

Tabulate the corrected endpoint or rate at each stated condition.

3. Plot

Plot activity against pH and against temperature. Mark the tested range and the strongest measured response.

4. Interpret

Explain that the highest tested response is a method-specific finding, not a universal optimum.

Observations and Record

Record item	Entry
Activity / material identifier	_____
Measurement or visible feature	_____
Comparison / calculated outcome	_____
Interpretation and limitation	_____

Worked Example

The numbers below are illustrative; enter your own observations in the record.

- Relative activity = response at a condition $\div$ highest response in the compared series $\times$ 100.
- If the highest corrected response is 0.80 and another is 0.40, relative activity is 50%.

Result

The recorded finding is ____; the supporting observation or calculation is _____. The main limitation is _____.

Precautions

- Use the supplied teaching material; distinguish a measured observation from an assumed value.
- Keep units, axes, labels and measurement conditions consistent.
- Record limitations and seek instructor review before applying a conclusion to a live case.

Viva Questions and Answers

1. What is the main endpoint?

Compare enzyme-response data across defined pH and temperature conditions

2. Does one observed result prove a general conclusion?

No. Controls, repeatability and the limitations of the method must be considered.

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